CLAIMS

1. Image-encoding method implementing iterated function systems (IFS), said method comprising the following steps:

- the partitioning an image I to be encoded into a set of image regions, known as destination regions,
- the association, with each of said destination regions D, of a corresponding source region S and a collage function w such that w(S) is a good approximation of said destination region D,

said collage function being broken down into:

- a spatial collage function w_S, acting on the position and/or the geometry of said source region S in order to create a decimated source region $\overline{S}$; and
- a mass collage function w_M, acting on the contents of said decimated source region $\overline{S}$.

characterized in that said mass collage function w_M is an oscillating function.

2. Image encoding method according to claim 1, characterized in that said mass collage function $w_M$is a harmonic function.

3. Image encoding method according to claim 1, characterized in that said mass collage function w_M is a cosine function.

4. Image encoding method according to claim 3, characterized in that a transformed source region S' = w(S) is advantageously be defined by:

$$S'_i = w(S_i) = \sum_{l\in[0;N_c[} \sum_{k\in[0;N_c[} c_{kl} \times \overline{S}_i \times \cos(\theta_l i_x) \times \cos(\theta_k i_y) + b$$

where:

i is the index of the ith pixel of S', having co-ordinates (i_X, i_Y);

$\overline{S}_i$ is the image of S_i according to w_S;

θ is a real vector of R^{Nc} such that $\theta_j = 2\pi/2^j$;

c_{kl} and b are coefficients characterizing the collage function.

5. Image encoding method according to claim 4, characterized in that said coefficients c_{kl} and b are determined by searching for the coefficients minimizing an error between source and destination, said error being written as follows:

$$E = \sum_{i\in[0;card(D)[} (S'_i - D_i)^2$$

with: Card(D) being the number of pixels of D.

6. Image encoding method according to claim 5, characterized in that it implement a matrix linear system whose solutions are determined by means of one of the methods belonging to the group comprising a:

- direct method;
- iterated method;
- gradient method.

7. Image encoding method according to claim 6, characterized in that it implements a direct Gauss pivot method or Cholesky pivot method.

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8. Image encoding method according to any of the claims 1 to 6, characterized in that said mass collage function w_M is written in the form of a combination of oscillating functions whose number and/or frequency and/or amplitude can be parametrized.

9. Image-encoding device implementing iterated function systems (IFS) comprising:

- means for partitioning an image I to be encoded into a set of image regions, known as destination regions D,
- means for the association, with each of said destination regions D, of a corresponding source region S and a collage function w such that w(S) is a good approximation of said destination region D,

said collage function being broken down into:

- a spatial collage function w_S, acting on the position and/or the geometry of said source region S in order to create a decimated source region $\overline{S}$; and
- a mass collage function w_M, acting on the contents of said decimated source region $\overline{S}$,

characterized in that said mass collage function w_M is an oscillating function.

10 Collage method, implemented in a method for the encoding and/or decoding of digital data representing images, implementing iterated function systems (IFS), said method comprising the following steps:

- the partitioning of an image I to be encoded into a set of image regions, known as destination regions,
- the association, with each of said destination regions D, of a corresponding source region S and a collage function w such that w(S) is a good approximation of said destination region D,

said collage method implementing a collage function broken down into:

- a spatial collage function w_S, acting on the position and/or the geometry of said source region S in order to create a decimated source region $\overline{S}$; and
- a mass collage function w_M, acting on the contents of said decimated source region $\overline{S}$,

characterized in that said mass collage function w_M is an oscillating function.

11. Method of decoding images encoded by means of an encoding method implementing iterated function systems (IFS), said encoding method comprising the following steps:

- the partitioning an image I to be encoded into a set of image regions, known as destination regions,
- the association, with each of said destination regions D, of a corresponding source region S and a collage function w such that w(S) is a good approximation of said destination region D,

said collage function being broken down into:

- a spatial collage function w_S, acting on the position and/or the geometry of said source region S in order to create a decimated source region $\overline{S}$; and
- a mass collage function w_M, acting on the contents of said decimated source region $\overline{S}$.

characterized in that said mass collage function w_M is an oscillating function,
and in that said images are reconstructed by carrying out at least one iteration of said collage function applied to said corresponding source region S.

12. Decoding method according to claim 11, characterized in that the mass collage function applied to said decimated source region during the decoding takes account of a number of oscillating functions smaller than or equal to the number taken into account during the encoding.

13. Data carrier containing images encoded according to an image-encoding method implementing iterated function systems (IFS), said encoding method comprising the following steps:

- the partitioning an image I to be encoded into a set of image regions, known as destination regions,
- the association, with each of said destination regions D, of a corresponding source region S and a collage function w such that w(S) is a good approximation of said destination region D,

said collage function being broken down into:

- a spatial collage function w_S, acting on the position and/or the geometry of said source region S in order to create a decimated source region $\overline{S}$; and
- a mass collage function w_M, acting on the contents of said decimated source region $\overline{S}$.

only the position and/or the geometry of said source regions S and said collage functions being stored on said data support;

characterized in that said mass collage function w_M is an oscillating function,

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14. Application of the method according to any of the claims 1 to 8 to at least one of the fields belonging to the group comprising the following fields:

- compression of fixed images;
- compression (of images) in "intra" mode in a video encoder;
- compression of images or of a part of the images that are textured;
- magnification (zooming) of image zones;
- compression in spaces having a size greater than 2.